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Abstracts

E. MAEKAWA and K. KITAO: **Isolation and Constitution of a Xylan from Bamboo,** Agr. Biol. Chem., **37**(9), 2073 (1973).

A xylan from bamboo culm was isolated by extraction with alkali of chlorite holocellulose and fractional precipitation as a copper complex. The structure was investigated by means of examination of acid components by controlled hydrolysis, methylation analysis, and periodate oxidation. As a result of the findings, 4-O-methyl-α-D-glucuronic acid and 2-O-(4-O-methyl-α-D-glucopyranosyluronic acid) D-xylose were isolated and identified as acid components of the bamboo xylan. Hydrolysis of the fully methylated products afforded 2, 3, 5-tri-O-methyl-L-arabinose (1.6 moles), 2, 3, 4-tri-O-methyl-D-xylose (1.2 moles), 2, 3, 4, 6-tetra-O-methyl-D-glucose (0.4 mole), 2, 3-di-O-methyl-D-xylose (35.8 moles) and mono-O-methyl-D-xylose (2.6 moles). These results suggest that the bamboo xylan consists mainly of a linear backbone of 1, 4-linked β-D-xylopyranose unit, to which L-arabinofuranose and 4-O-methyl-D-glucuronic acid were attached as a single side chain unit at C-2 or C-3. Additional evidence for a linear chain structure has been given by periodate oxidation. On oxidation by periodate, the bamboo xylan consumed 1.09 moles of periodate and produced 0.05 mole of formic acid per anhydroxylose unit. Therefore, it is concluded that the structural features of the bamboo xylan is essentially similar to various other xylans from the Gramineae with respect to its main chain and single unit side chain.

E. MAEKAWA and K. KITAO: **Water-Soluble Polysaccharides in Bamboo Shoot,** Agr. Biol. Chem., **37**(10), 2445 (1973).

The matrix polysaccharides of plant cell wall at the immature stage of growth contain complex components such as hemiceluloses and pectic substances. In order to examine such matrix polysaccharides, water-soluble polysaccharides in bamboo shoot were investigated. Consequently, the water-soluble polysaccharides were found to consist mainly of three types of polysaccharides, namely an acid xylan, an arabinogalactan and α-glucan. This report is concerned with isolation and identification of these water-soluble polysaccharides.

M. NORIMOTO, F. NAKATSUBO and T. YAMADA: **Dielectric Properties of Lignin,** J. Soc. Materials Sci., Japan, **22**, 937 (1973).

In order to make clear the mechanism of the dielectric relaxation processes in MWL (milled wood lignin), the dielectric loss factors of HINOKI MWL, acetylated HINOKI MWL and three kinds of DHP (dehydrogenation polymer) prepared from p-coumaryl alcohol, p-coumaric acid and isoeugenol, respectively, were measured over the frequency range of 3×10^2 to 1×10^6 Hz and the temperature range of -70°C to room temperature.

The results show that two relaxation processes exist in MWL: one is observed in high frequency range below room temperature and the other in low frequency range at room temperature. The activation energy for the relaxation process in high frequency range is about 10 kcal/mole and this relaxation process is almost eliminated by acetylation. Furthermore, the same ralaxation process is observed in DHP from p-coumaryl alcohol in which CH_2OH group is present. From these results it is considered that the relaxation process in high frequency range is associated with the reorientation of CH_2OH dipoles. On the other hand, the activation energy for the relaxation process in low frequency range is about 14 kcal/mole and the relaxation process is eliminated by drying and is not observed in acetylated MWL. Consequently, it is considered that the relaxation process in low frequency range is due to the reorientation of water molecules adsorbed to OH group.

ABSTRACTS

K. SUMIYA: **Wood Research and Electric Instruments**, Denshi-Keisoku, **13**, No. 12, 2 (1973) (in Japanese).

The electric instruments which are recently used in the region of wood physics are introduced. Especially the instruments for the rheological and dielectrical measurements in the Division of Wood Physics of the Institute are explained in detail.

K. NISHIMOTO: **Physiological Active Substances on Termite**, Mokuzai Gakkaishi, **19**, 515 (1973).

The widespread occurrence of chemical signal substances or pheromones in insects is now firmly established, and chemical means of communication have come to be recognized as a very important factor in the biology of most groups. Pheromones are fundamental to social insect life.

The termite society may ultimately prove to be even more dependent upon pheromones than are those of the Hymenoptera.

This review looks into the pheromones of termite, especially trail-following pheromone, on the standpoint of a wood biology. It is interesting fact that the termite responses to the fungus-infected wood.

The 26th Public Lecture held by Wood Research Institute (October 19, 1973, Uji)

T. KISHIMA: A View on the Species of Southeast Asian Timber (In memory of retirement).

Y. KIMURA: Some Opinions on the Study of Pulp and Paper (In memory of retirement).

M. TANAHASHI: Structural Studies of Bamboo Lignin by Acidolysis and Ozonolysis.

K. TSUNODA: Shipworm Attack on Wood.

S. ISHIHARA: Performance of Expousured Fire Proofed Plywood.

T. NOMURA: Bamboo Formation and its Physical Property.

A. ENOKI: Autoxidation of Resin Acid.